SUB A

CLAIMS

1. A method of handling a request from an application to perform a file operation relative to a specific file, the method comprising the steps of:

receiving the request to perform the file operation;

attempting to perform the file operation atomically by retrieving a file path corresponding to the specific file from a file system namespace cache; and

notifying the application that the file operation could not be performed atomically if the file operation could not be performed atomically because the file path is not stored in the file system namespace cache.

2. The method of claim 1 further comprising the steps of:

performing the file operation atomically if the file path corresponding to the file is stored in the file system namespace cache; and

notifying the application that the file operation was performed atomically if the file operation was performed atomically.

3. The method of claim 1 wherein the file system namespace cache is disposed within an operating system kernel.

4. The method of claim 2 wherein the file system namespace cache is disposed within an operating system kernel.

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5. A method of handling a request to an operating system to perform a file operation, the request being sent from an application to the operating system, wherein the operating system can notify the application if the file operation cannot be performed atomically, the method comprising the steps of:

sending the request to the operating system;

receiving a notification from the operating system that the file operation cannot be performed atomically; and

redirecting the request if the notification is received from the operating system that the file operation was not performed atomically.

6. The method of claim 5 wherein the redirecting of the request further comprises sending the request to blocking point handling within a user space including the application.

7. The method of claim 5 wherein the redirecting of the request further comprises sending the request to blocking point handling within a kernel for the operating system.

8. A computer program product having computer program code embodied therein, the computer program code for of handling a request from an application to perform a file operation related to a specific file, the computer program code comprising:

instructions for receiving the request to perform the file operation;

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instructions for determining if a file path corresponding to the specific file is stored in a file system namespace cache;

instructions for performing the file operation atomically if the file path corresponding to the file is stored in the file system namespace cache;

instructions for notifying the application that the file operation was performed atomically; and

instructions for notifying the application that the file operation cannot be performed atomically if the file operation was not performed atomically because the file path is not stored in the file system namespace cache.

9. The computer program product of claim 8 wherein the computer program code further comprises instructions for maintaining the file system namespace cache within an operating system kernel.

10. A computer program product having computer program code embodied therein, the computer program code for handling a request to an operating system to perform a file operation, the computer program code comprising:

instructions for sending the request to the operating system;

instructions for receiving a notification from the operation system that the file operation was performed atomically;

instructions for receiving a notification from the operating system that the file operation could not be performed atomically;

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instructions for using the file if a notification that the file operation was performed atomically is received; and

instructions for redirecting the request if a notification that the file operation could not be performed atomically is received.

11. The computer program product of claim 10 wherein the instructions for the redirecting of the request further comprise instructions for sending the request to blocking point handling within a user space including the application.

12. The computer program product of claim 10 wherein the instructions for the redirecting of the request further comprise instructions for sending the request to blocking point handling within the an operating system kernel.

13. Apparatus for handling a request from an application to perform a file operation relative to a specific file, the apparatus comprising:

means for receiving the request to perform the file operation;

means for determining if a file path corresponding to the specific file is stored in a file system namespace cache;

means for performing the file operation atomically if the file path corresponding to the specific file is stored in the file system namespace cache;

means for notifying the application that the file operation was performed atomically; and

means for notifying the application that the file operation was not performed atomically if the file operation was not performed atomically because the file path is not stored in the file system namespace cache.

14. Apparatus for handling a request to an operating system to perform a file operation, the apparatus comprising:

means for sending the request to the operating system;

means for receiving a notification from the operation system that the file operation was performed atomically;

means for receiving a notification from the operation system that the file operation could not be performed atomically;

means for using the file if a notification that the file operation was performed atomically is received; and

means for redirecting the request if a notification that the file operation was not performed atomically is received.

15. An operating system comprising:

a file system including a file system namespace; and

an operating system kernel operatively connected to the file system, the operating system kernel operative to enable the execution of at least one application, the operating system kernel further comprising:

a file system namespace cache for caching file paths from the file system namespace; and

an atomic look-up operation operable to determine if a specific file path corresponding to a specific file is stored in the file system namespace cache and to notify the at least one application whether a file operation relative to the specific file is being performed atomically based on whether the specific file path is stored in the file system namespace cache.

16. The operating system of claim 15 wherein the at least one application resides and executes within a user space that is operatively connected to the operating system kernel and the file system namespace.

17. The operating system of claim 15 wherein the at least one application resides and executes within the operating system kernel.

18. The operating system of claim 15 wherein the operating system kernel further comprises blocking point handling which can be invoked if and when the file opration cannot be performed atomically.

19. The operating system of claim 16 wherein the operating system kernel further comprises blocking point handling which can be invoked if and when the file operation cannot be performed atomically.

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20. The operating system of claim 17 wherein the operating system kernel further comprises blocking point handling which can be invoked if and when the file operation cannot be performed atomically.

21. The operating system of claim 16 wherein the user space further comprises blocking point handling which can be invoked if and when the file operation cannot be performed atomically.

22. The operating system of claim 16 wherein the operating system kernel and the user space further comprise blocking point handling which can be invoked if and when the file operation cannot be performed atomically.

23. An instruction execution system operable to handle a request from an application to an operating system to perform a file operation relative to a specific file by performing the steps of:

sending the request to perform the file operation from the application to the operating system;

attempting to perform the file operation atomically by, at least in part, determining if a file path corresponding to the specific file is stored in a file system namespace cache;

notifying the application that the file oepration could not be performed atomically if the file path is not stored in the file system namespace cache;

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redirecting the request if the file operation was not performed atomically because the path is not stored in the file system namespace cache.

24. The instruction execution system of claim 23 wherein the file system namespace cache is disposed within an operating system kernel.

25. The instruction execution system of claim 23 wherein the redirecting of the request further comprises sending the request to blocking point handling within a user space including the application.

26. The instruction execution system of claim 23 wherein the redirecting of the request further comprises sending the request to blocking point handling within a kernel of the operating system.

27. The instruction execution system of claim 24 wherein the redirecting of the request further comprises sending the request to blocking point handling within a user space including the application.

28. The instruction execution system of claim 24 wherein the redirecting of the request further comprises sending the request to blocking point handling within a kernel of the operating system.

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